

## **Third Annual Carbon Sequestration Conference**

### **Dept of Energy Secretary The Honorable Spencer Abraham**

Thank you, Mark (Maddox), and good morning to all of you. It is a great pleasure to be here.

I want to acknowledge Ed Helminski, whose hard work helped make this conference possible, and to thank all the participants, particularly the panelists and exhibitors, for their participation in this third annual Carbon Sequestration Conference.

It is through meetings like this... where ideas are exchanged... research progress is shared... and new, cooperative efforts are forged, that we are making real progress to ensure our nation's energy security and environmental health.

The theme of this conference is Carbon Sequestration.

Secretary Maddox and others have already discussed some of the initiatives our Department has undertaken to make coal—our most abundant and economical source of energy—into a clean, environmentally friendly fuel through sequestration and related efforts.

I would like to place that subject in the larger context of global climate change, and discuss what the Administration is doing on a broad scale. This is important... and, evidently, necessary.

Just last Friday, in a meeting with reporters to discuss the Department's work on hydrogen energy, I was a little amazed that one of the first questions was, "How does this fit in with the President's climate change agenda, assuming he has one?"

Obviously, we still have to work to get our message out and so today I want to discuss what we are doing regarding climate change, the priority we are giving to this issue, and the accomplishments we have made to date.

More than two years ago, President Bush announced the creation of a Cabinet-level Committee on Climate Change Science and Technology Integration, co-chaired by Secretary of Commerce Don Evans and me.

The Committee's work is divided into two project lines, with the Department of Commerce leading the climate change science effort and the Department of Energy leading the technology research effort. Both project lines are interconnected and complementary.

A major part of that effort is the new strategic plan for the Climate Change Science Program, released in July of last year.

That plan received an extensive review in February by the National Research Council—the research arm of the prestigious National Academies of Science—which noted that the plan "articulates a guiding vision, is appropriately ambitious, and is broad in scope" and that "advancing science on all fronts identified by the program will be of vital importance to the

nation.”

We are very pleased to have received such strong endorsement and encouragement of our work. And I think this demonstrates the seriousness with which our Administration takes climate related issues.

But the importance of good scientific research is underscored by the fact that we actually know very little about the scope, magnitude, timing, or regional distribution of future climate change or its potential impact on society.

Our goal is to produce useful scientific information on climate change that will bring greater focus to our research, and help us formulate and implement the most effective future technological solutions.

President Bush described this best when he said, “Our actions should be measured as we learn more from science and build on it. ... We will act, learn, and act again, adjusting our approaches as science advances and technology evolves. Our administration will be creative.”

That does not mean that we will delay necessary action, or that scientific research will be a substitute for responsible policy-making. It does mean that our actions will be guided by the best available information about which proposals actually work.

Now let me mention the actions we are taking. I’ll begin with a brief description of our policy.

In February 2002, President Bush announced an ambitious national goal to reduce by 18 percent over the next 10 years the greenhouse gas intensity, or emissions per unit of economic output, of the U.S. economy.

Achieving this 18 percent reduction goal will result in the United States reducing the 183 metric tons of greenhouse emissions per million dollars GDP that we emit today to 151 metric tons per million dollars GDP in 2012.

And meeting this commitment will achieve 100 million metric tons of reduced emissions in the year 2012 alone, with more than 500 million metric tons in cumulative carbon-equivalent emissions reductions through 2012 – an amount equal to taking 70 million cars off the road.

To support this ten-year goal, the Bush Administration is engaging in a variety of approaches.

One example is our Climate VISION program, a presidential initiative launched by the Energy Department in February 2003 which is designed to reduce the growth of greenhouse gas emissions by energy-intensive industrial sectors. Participants in the program account for between 40 and 45 percent of U.S. greenhouse gas emissions. These sectors have already agreed to meet specific commitments to reduce their industry emissions, and to use their successes to help enable those in other sectors, such as the commercial and residential sectors, to reduce their greenhouse gas impacts. The Climate VISION program works with industry trade associations to accelerate the transition to practices, technologies, and processes that are cleaner, more

efficient, and capable of capturing or sequestering greenhouse gases.

On another front, in February 2002, the President directed the Department of Energy and other federal agencies to improve the accuracy, reliability, and verifiability of the voluntary greenhouse gas-reporting program that was established in 1994. A draft of the revised “1605(b) guidelines”—as they are called—was issued in November, and we are now reviewing the public feedback in order to issue new guidelines this summer.

The Bush Administration is also maintaining and, where appropriate, expanding an array of federal programs and policies that support greenhouse gas reductions. These include tax credits for renewable energy like solar, geothermal and wind sources, energy efficient technologies like hybrid and fuel cell vehicles, and electricity cogeneration, and tougher fuel economy standards for motor vehicles.

In addition, “Energy Star” labeling is encouraging more efficient home appliances, and the “Energy Savers” program provides energy efficiency tips to homeowners.

We believe these approaches will be effective because they allow consumers, businesses, and industries to make flexible decisions rather than being forced to implement government-mandated actions or to meet government-imposed targets.

However, the Bush Administration said in enunciating the 2002 Climate Change Strategy that if by 2012, “our progress is not sufficient, and sound science justifies further action, the United States will respond with additional measures that may include a broad, market-based program, as well as additional incentives and voluntary measures designed to accelerate technology development and deployment.”

We are proud of our record, and we believe that with all of these initiatives we can achieve our short-term goals. But, of course, that only covers the short run.

So, in addition to the actions listed above, we have also launched an aggressive effort to lay the foundations for mid- and long-term advances that will spring from a greater understanding of the climate, how it is changing, and how it is being affected by various factors.

That means supporting better environmental observation systems, especially in developing countries where they are needed most. One such effort is the Earth Observation Summit, which was hosted by the United States in 2003 and attended by more than 30 nations. The second Summit, held in Tokyo last month and attended by representatives from 43 nations, issued a ten-year plan for coordinated efforts.

The goal of the Summit is to establish an international, wide-ranging, and integrated Earth observation system, which will be a crucial element in advancing our understanding of climate change.

Better observation systems will create more accurate climate models, improve our knowledge of the behavior of carbon and aerosols emitted into the atmosphere, and develop strategies for

carbon sequestration. They will also help in the formulation of sound, science-based environmental policies, and allow us to measure progress and assess the effectiveness of our policies.

All of this is important, of course. But in a way, it is only half the battle. There is growing realization that existing energy technologies, even with substantial refinements, are incapable of both powering global development and achieving stabilization of greenhouse gas concentrations in the atmosphere.

Rather, we need to develop revolutionary technologies to deal with the long term challenges we face. Our ultimate aim is to achieve both cleaner energies and economic productivity... and transcend the false choice between the environment or the economy.

That means creating the kinds of technologies that do not simply refine current energy systems, but actually transform the way we produce and consume energy. The Bush Administration's Climate Change Technology Program, led by the Energy Department, is hard at work developing those technologies.

Some will take years to perfect, others decades. But we are determined to make them a reality. We are putting billions of dollars into this effort, and more than a dozen federal agencies – working with partners in academia, the private sector, and other nations – are investing countless hours on them. And just as the Climate Change Science Program did last year, this year the Technology Program will publish a multi-agency strategic plan to guide our investments in climate change mitigation technology.

Let me highlight a few of the transformational technologies on which we are working. As I noted at the beginning, other Energy Department officials have discussed various aspects of our work on carbon sequestration. But I do want to take this opportunity to highlight the importance of the Carbon Sequestration Leadership Forum.

This is a major Bush Administration initiative to support a multilateral effort for advancing technologies that capture and store carbon emissions. The Forum was inaugurated formally at a ministerial meeting last June, at which 13 coal producing and consuming nations and the European Union signed an international charter establishing a framework for cooperative research and development. A meeting of the Policy and Technical Committees in Rome last January made tremendous progress in advancing this partnership, and I want to thank all of you who participated.

The Forum's partners have also been invited to participate in our \$1 billion FutureGen project – an initiative to design and construct the first emission-free coal-fired power plant. FutureGen will be one of the boldest steps our nation takes toward a pollution-free energy future. Virtually every aspect of the plant will be based on cutting-edge technology. It will be a living prototype, testing the latest technologies to generate electricity, produce hydrogen, and sequester greenhouse gas emissions from coal. FutureGen will help lead to the development of clean fossil fuel power plants all across the world. It will allow this abundant and economical fuel source to continue producing energy without its traditional environmental side-effects.

These are exciting and important projects, but we are also looking beyond traditional energy sources. Today, technology is transforming our lives like never before, and it is changing the way we think about energy. President Bush recognized the promise of transformational technologies when he announced his groundbreaking plan to change our nation's energy future to one that utilizes the most abundant element in the universe – hydrogen.

The United States has pledged \$1.7 billion to fund the ambitious FreedomCAR and Hydrogen Fuel Initiative to develop emission-free automotive operating systems that run on hydrogen. Just last week, I was pleased to announce \$350 million in nation-wide funding for science and research projects to help establish a hydrogen economy. These funds will be matched by an additional \$225 million from the private sector to advance President Bush's goal of bringing fuel cell technology from the laboratory to the showroom.

Hydrogen represents one of the most attractive options to meet both our energy and environmental goals. It has a high energy content, it produces no pollution when used to create energy in fuel cells, and it can be produced from a number of different sources, including renewable resources, fossil fuels, and nuclear energy.

The United States has also reached out to our international partners to advance global cooperation in hydrogen research. In November, I joined with Ministers representing 14 nations and the European Commission, meeting here in Washington, to formally establish the International Partnership for the Hydrogen Economy (IPHE).

This ambitious joint-venture breaks new ground in hydrogen cooperation, and is built on the hope and expectation that a participating country's consumers will have the practical option of purchasing a competitively priced hydrogen power vehicle, and be able to refuel it near their homes and places of work, by 2020.

The International Partnership for the Hydrogen Economy is strengthened by a growing network of bilateral energy agreements. For instance, just two weeks ago, I signed an important Memorandum of Understanding to help develop hydrogen technologies with Brazil, our largest neighbor to the South.

In addition to hydrogen, we are also looking at bio-energy and bio-based industrial processes, which have the potential to reduce greenhouse gas emissions and promote sustainable development. As we are learning, scientific advances are making it possible to convert biomass to petroleum substitutes. These substitutes could not only reduce dependence on oil, but also reduce greenhouse gas emissions.

We also recognize nuclear energy as a clean energy choice, both in the near- and longer-term. The Generation IV program, which includes 11 international partners, is working on new fission reactor designs that will be safer, more economical and secure, and able to produce new products, such as hydrogen.

In addition, we look forward to working with our partners Japan, China, Russia, the Republic of Korea, and the European Union to develop the International Thermonuclear Experimental

Reactor—or ITER. ITER is a long-term, multi-billion dollar project to develop nuclear fusion as a future energy source.

Taken together, these technology initiatives, if successful, add up to what can only be described as a long-term revolution in our energy systems. Not only will these technologies put us on a long-term path to stabilizing atmospheric greenhouse gas concentrations, they will also ensure secure, reliable, affordable, and clean energy to power economic growth and development across the globe.

Needless to say, these initiatives cost money, and we have backed them up with significant resources. This year, the Bush Administration is requesting almost \$5 billion for various climate change programs. Moreover, the new Energy Department initiatives I've discussed will constitute more than \$5 billion in research activities over the next five to 10 years. I am proud of the level of this commitment and I feel it places the United States in a very strong global position in terms of climate technology investment.

The efforts on climate change I have described today represent a bold approach to a very vexing challenge. But I am confident it is an approach that offers the best hope to find cost-effective solutions to this long-term challenge. Because current technologies cannot lead to the desired result, irrespective of any regime of targets, we strongly believe that to get the job done we will need transformational energy technologies, similar in scope to the discovery of electricity or the development of the automobile. Without these technologies, no matter how good our intentions, we cannot achieve our environmental goals except through economic stagnation.

As I have often said, it is wrong to expect nations – especially developing nations – to accept lower standards of living and curtailed economic development, just as it is impractical to expect that any nation will not take advantage of abundant domestic energy resources to power their economies. It is better, therefore, that we work to develop new technologies that advance all our economies and preserve the world's environment.

Fifty years ago, no one could have guessed how technology would transform the way we live today. Computers, genomics, nanotechnology, space travel, and other technical marvels were hardly imaginable a century ago. But mankind developed these things. And it is in our nature that we continue to develop new technologies to advance civilization.

The challenges we face are significant. But we are capable of developing and perfecting the new technologies that will transform the way our children and grandchildren and all future generations live.

Together, we can and will perfect the technology of carbon sequestration. We can and will transform our economies from carbon-based to hydrogen-based. And we can and will restrain the emission of greenhouse gases so we bestow a healthy planet on future generations.

This will require hard work, creativity, and cooperation, particularly from all of us here today. But I believe that we can do it.

Thank you.